MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

TDC 1231 – Data Communications and Networking
(All sections / Groups)

11 March 2020
9.00 am – 11.00 am
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 6 printed pages (including cover page) with 5 questions only.

2. Attempt **ALL Questions.** All Questions carry equal marks (10 marks). The distribution of the marks for each question is given.

3. Please print all your answers in the answer booklet provided.

QUESTION 1 [10 marks]

i. Which of the following is the component in data communication system?

A)   protocol
B)   language
C)   address
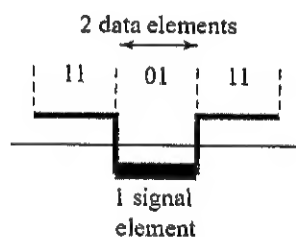D)   time

ii. In a fully connected mesh topology with twenty (20) links, we need _____ computers.

A)   10
B)   40
C)   25
D)   5

iii. Which is the following is NOT the component in unshielded twisted pair (UTP)?

A)   conductor
B)   metal shield
C)   plastic cover
D)   insulator

iv. What is the value of r for the following diagram?

A)   1
B)   2
C)   1/2
D)   6

v. Identify the disadvantage of parallel transmission.

A)   cost
B)   processing time
C)   speed
D)   delay

vi.   Find the Hamming distance between d(0101, 1110).

A)   1
B)   5
C)   2
D)   3

vii.   Frequency-division multiplexing (FDM) is a/an _____ technique.

A)   digital   C) hybrid
B)   analog   D) signal

viii.   _____ and _____ are intradomain routing protocols.

A)   RIP, BGP
B)   RIP, OSPF
C)   OSPF, BGP
D)   IS-IS, OSPF

ix.   A _____ operates in both the physical and data link layers.

A)   repeater
B)   hub
C)   bridge
D)   router

x.   The MAC address is sent __, byte by byte; for each byte, it is sent ___, bit by bit.

A)   left to right, left to right
B)   right to left, left to right
C)   right to right, right to right
D)   left to right, right to left

QUESTION 2 [10 marks]

i.   Which of the following is NOT the responsibilities of the data link layer?

A)   Framing
B)   Physical addressing
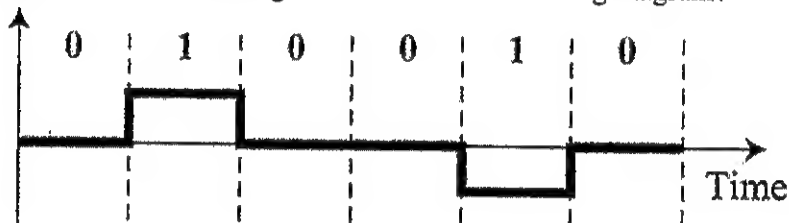C)   Flow control
D)   Transmission mode

Continued.......

ii.   The period of a signal is 20 ms. What is its frequency in kilohertz?

A) 5×10^{-2} kHz
B) 2×10^{-2} kHz
C) 5×10^{2} kHz
D) 2×10^{2} kHz

iii.   ___ is used for _____ distance while _____ is used for _____ distance.

A)   single mode, long, multimode, short   C) single mode, long single mode, short
B)   single mode, short, multimode, long   D) multimode, long multimode, short

iv.   What is the line coding schemes for the following diagram?

A)   AMI
B)   NRZ-L
C)   Differential Manchester
D)   RZ

v.   Which of the following is NOT a Data communications equipment (DCE)?

A)   modem
B)   switch
C)   hub
D)   laptop

vi.   Which of the following is used for error correction?

A)   checksum
B)   cyclic codes
C)   hamming code
D)   polynomials

Continued.......

vii. In _____, the amplitude of the information signal changes, the phase of the carrier changes correspondingly.

A) FDM
B) DSSS
C) FHHS
D) TDM

viii. Which of the following is NOT the process phase in circuit-switched network?

A) connection setup
B) data transfer
C) protocol negotiation
D) connection teardown

ix. To minimize the chance of collision, _____ is applied in wired network and _____ is applied in wireless network.

A) CSMA/CA, CSMA/CD
B) CSMA/CD, CSMA/CA
C) CSMA/CA, CSMA/CA
D) CSMA/CD, CSMA/CD

x. _____ is the Bluetooth network with only one master node.

A) piconet
B) scatternet
C) nanonet
D) ultranet

Continued.......

QUESTION 3 [3+2+2+3 marks]

(a) Produce **THREE** diagrams to differentiate simplex, half-duplex, or full-duplex.

(b) A digital signal has 980 levels. How many bits are needed per level?

(c) List **TWO** examples of unguided transmission media.

(d) Produce the waveforms of biphase Manchester for 101000110.

QUESTION 4 [2+3+4+1 marks]

(a) List **ONE** advantage and **ONE** disadvantage of parallel transmission.

(b) Explain amplitude shift keying, frequency shift keying and phase shift keying.

(c) Compute the codeword if dataword is 1001 and its divisor is 1011. Show your calculation steps.

(d) What is multiplexing?

QUESTION 5 [3+3+4 marks]

(a) List **THREE** considerations of distance vector implementation in Routing Information Protocol (RIP).

(b) List **THREE** reasons why CSMA/CD algorithm does not work in wireless LANs. Subsequently, state the solution that was invented to replace CSMA/CD in wireless LANs.

(c) Given 00101101 00010010 10001100 10100001 11010010 01011110 as a set of address bit received at receiver device, compute the physical address.

End of Page